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09/806,775	07/09/2001	Markku Rajala	0386/00294	5959

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EXAMINER
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HOFFMANN, JOHN M

ART UNIT	PAPER NUMBER
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1731

DATE MAILED: 04/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/806,775

Applicant(s)

RAJALA ET AL.

Examiner

John Hoffmann

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 22-24,29,30,32 and 36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 22-24,29,30 and 36 is/are rejected.
- 7) ☒ Claim(s) 32 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5 April 2005 has been entered.

### ***Specification***

The disclosure is objected to because of the following informalities: The specification does not have all the various parts with headings.

Appropriate correction is required.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)),

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and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or

REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a).

"Microfiche Appendices" were accepted by the Office until March 1, 2001.)

(f) BACKGROUND OF THE INVENTION.

(1) Field of the Invention.

(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

(g) BRIEF SUMMARY OF THE INVENTION.

(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(i) DETAILED DESCRIPTION OF THE INVENTION.

(j) CLAIM OR CLAIMS (commencing on a separate sheet).

(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

### ***Drawings***

The drawings are objected to because the figures are not individually labeled as such – they are designated as "KUV" which is not proper. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement

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sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

Claim 32 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 36 requires a step of supplying fuel gas and a step of introducing an atomizing gas. However claim 32 requires that these two gases are the same – thus both steps no longer exist. Thus it limits it to a method which is mutually exclusive of claim 36. Claim 32 is not further treated on the merits.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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Claims 22-24, 29-30 and 36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Examiner could find no support for the "causing" step (last two lines of claim 36). Wherein the specification suggests that the particles combine as claim, there is no suggestion that there is any causing. It seems to examiner that such necessarily happens. The "causing" implies a manipulative step. It is suggested that the limitation be something like, "wherein the first and second particles combine.... And move add an additional "and" at the end of the 5<sup>th</sup> to last line.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 22-24, 29-30 and 36 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear what is meant by the "causing" – 2<sup>nd</sup> to last line of claim 36. It is unclear whether this requires a manipulative step.

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See Allen Eng'g Corp. V. Bartell Indus. Inc. 299 F.3d 1336, 1348, 63 USPQ2d 1769, 1775 (Fed. Cir. 2002) (quoting Personalized Media Communications, LLC v. Int'l Trade Comm'n, 161 F.3d 696, 705, 48 USPQ2d 1880, 1888 (Fed. Cir. 1998)) ("In determining whether the claim is sufficiently definite, we must analyze whether "one skilled in the art would understand the bounds of the claim when read in light of the specification.") See also, Exxon Research & Eng'g Co. v. United States, 265 F.3d 1371, 1375, 60 USPQ2d 1272, 1276 (Fed. Cir. 2001) (citation omitted) (patent claims must be "sufficiently precise to permit a potential competitor to determine whether or not he is infringing").

Presently it seems that a potential competitor could not determine whether he is infringing if he were to effect all the claimed steps but not perform a "causing" step (but inherently have the particles combine, nonetheless) . See above for suggested language.

### ***Claim Rejections - 35 USC § 103***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 36, 22 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hawtof 6565823 in view of Takahashi 4388098.

Hawtof discloses everything of claim 1, except for the liquid solution. See figure 1 and 4 (and the associated text). It unambiguously discloses supplying a fuel gas (methane) through a nozzle (40) to produce a flame 23. As per col. 7, lines 31-44, there a liquid and a "small portion" of vapor. The small portion is deemed to be the first glass component and the liquid is the second glass component. The second glass component contains a rare earth metal (see claim 2 and from col. 8, line 63 to col. 9, line 10 of Hawtof); as indicated above, there is no teaching that it is a solution. As to the step of introducing an atomizing gas: Hawtof col. 8, lines 40-45.

Hawtof also does not disclose first and second particles which combine with each other to form multicomponent glass particles. It is noted from page 5, lines 6-17 of the present application that it is "unclear" to applicant what actually happens. In as much as that passage states that applicant states that it can be "assumed" as to what



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happens, it is deemed that one can likewise assume the same thing would happen in Hawtof because Hawtof also has a vapor and liquid. Although Examiner is not an expert in flame science/experimentation, to Examiner it might be impossible for one to be able to determine whether two different types of particles are actually created in a flame as a precursor to the multi-component glass particles. Alternatively, it would seem possible that a potential competitor could substantially copy the present invention, and necessarily avoid infringement because one could not prove (at best one could only 'assume') whether the first and second particles were created or whether the oxides condensed equally to all particles.

Hawtof does not disclose much of anything about the dopant precursors. Takahashi discloses that there are difficulties (col. 1, lines 27- 53) when adding dopants. Takahashi discloses the solution to the problem - that nebulized solutions of the metal salts is "quite simple" and ensures fibers with low loss (col. 1, lines 67). It is noted that Takahashi's lanthanum oxide is a rare earth metal oxide. It would have been obvious to provide the Hawtof rare earth dopant by using a solution of a lanthanum salt because such is quite simple and it ensures a fiber with low loss.

Claims 22, 29-30 are clearly met.

Claims 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hawtof 6565823 in view of Takahashi 4388098 as applied to claims 22 and 36, and further in view of Ainslie 4923279.

Hawtof does not teach the specific elements erbium and aluminum.

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Ainslie teaches that erbium is one of the two "most important" rare earths and that one can make oscillators, lasing devices and amplifiers; and that aluminum eliminates losses of dopants (col. 1, lines 13-26 and 48-53 col. 3, lines 19-25 and col. 2, lines 40-45. It would have been obvious to use erbium as the Hawtof rare earth because it is most important and so as to make oscillators, amplifiers and lasing devices. And further obvious to use aluminum dopant (by adding an aluminum salt solution) so as to prevent the loss of dopants.

Claims 36, 22-24, 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Randall 3883336 in view of Hawtof 6565823, Ainslie 4923279, and Takahashi 4388098.

Randall discloses the invention as claimed (see below) except for the rare earth.

Hawtof discloses the use of rare earth in a similar process, Ainslie (col. 1, lines 12-26 and 48-53 and elsewhere) discloses the advantages of using rare earths, Takahashi is cited as giving guidance as to the use of solutions for rare earth dopants. It would have been obvious to modify the Randall process, by using rare earth dopant solutions as claimed, for the advantages that Ainslie teaches and/or to create sensors, oscillators, and amplifiers as taught by Ainslie.

As to the rest of the claimed features, figure 1 unambiguously represents the first two introducing steps. Col. 3, lines 11-15 teach the 4<sup>th</sup> introducing step and the atomizing step. The causing step: col. 2, lines 53-58 discloses that two different

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particles are formed. It is deemed that at least some of the particle would collide and stick to each other to make larger particles/agglomerates. Clearly if they are sticky enough to adhere to a substrate, they can adhere to each other.

**THE FIRST of TWO DIFFERENT CLAIM INTERPRETATIONS REGARDING**  
**the THIRD INTRODUCING STEP**

As to the third introducing step, at first glance Randall does not have the second glass component going through the same nozzle – because they go through two separate structures. However first glances are not always accurate, claims are given their broadest reasonable interpretation.

The PTO gives a disputed claim term its broadest reasonable interpretation during patent prosecution. Hyatt, 211 F.3d at 1372. The “broadest reasonable interpretation” rule recognizes that “before a patent is granted the claims are readily amended as part of the examination process.” Burlington Indus. v. Quigg, 822 F.2d 1581, 1583 (Fed. Cir. 1987). Thus, a patent applicant has the opportunity and responsibility to remove any ambiguity in claim term meaning by amending the application. In re Prater, 415 F.2d 1393, 1404-05 (CCPA 1969). Additionally, the broadest reasonable interpretation rule “serves the public interest by reducing the possibility that claims, finally allowed, will be given broader scope than is justified.” In re Am. Acad. of Sci. Tech. Ctr., 367 F.3d 1359, 1364 (Fed. Cir. 2004) (quoting In re Yamamoto, 740 F.2d 1569, 1571-72 (Fed. Cir. 1984)).

Examiner has attempted to determine what the broadest reasonable interpretation of “nozzle”. First Examiner looked to the specification and did not find any definition for “nozzle” or anything which suggested a definition, or in anyway limited

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what is meant by the term. Then looking to the drawings and the specification, Examiner noticed that numeral "1" refers to the spray gun, 2a-6a refer to the tubes, and 11-13 refer to orifices. As far as Examiner can tell, all of the individual parts are accounted for, as well as the collection of parts (i.e. 1). Examiner is at a loss as to what constitutes the nozzle "8". Examiner's most recent guess was that the "nozzle" was the burner face, because that was what "8" points to in figure 1. But then Examiner noticed that Figure 2 appears to show just a "part" of the nozzle (page 3, line 24 of spec).

Examiner then turned to his dictionary. See attached PTO-1449. The dictionary shows two possible definitions: a projecting vent; a short tube. But the relevant vents and tubes are already labeled and assigned different numbers in the drawing. Moreover, it cannot be the vents because the first component goes through vent 11 (see col. 5, lines 3-5 and figure 1-2), and the second component does not. In other words, since claim 36 requires both component to go through the same nozzle, and since the components go through different vents, the nozzle is not a vent.

Examiner presumes that the broadest reasonable interpretation of "nozzle" is "any structure through which fluids can travel; and this need not be a unitary body." It is noted that a claimed apparatus is not interpreted to be a connected/interconnected structure – unless the claim requires such. For example an invention can comprise a satellite and ground station which are very distant from each other. Thus it is deemed that the present claimed "nozzle" reads on Randall's unconnected nebulizer plus burner. Alternatively, it would have been obvious to connect the nebulizer and burner together so as to keep them in the same spacing/orientation relative to each other.

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**.From MPEP 2144.04**

**B. Making Integral**

In re Larson, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965) (A claim to a fluid transporting vehicle was rejected as obvious over a prior art reference which differed from the prior art in claiming a brake drum integral with a clamping means, whereas the brake disc and clamp of the prior art comprise several parts rigidly secured together as a single unit. The court affirmed the rejection holding, among other reasons, "that the use of a one piece construction instead of the structure disclosed in [the prior art] would be merely a matter of obvious engineering choice."); but see Schenck v. Nortron Corp., 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983) (Claims were directed to a vibratory testing machine (a hard-bearing wheel balancer) comprising a holding structure, a base structure, and a supporting means which form "a single integral and gaplessly continuous piece." Nortron argued that the invention is just making integral what had been made in four bolted pieces. The court found this argument unpersuasive and held that the claims were patentable because the prior art perceived a need for mechanisms to dampen resonance, whereas the inventor eliminated the need for dampening via the one-piece gapless support structure, showing insight that was contrary to the understandings and expectations of the art.).

IT would have been obvious to combine all the Randall feeding devices into one unit – it is merely a matter of design choice. It is deemed that Randall gets the same result as Applicant .

Looking at Applicant's figure 2: the first component comes out of hole 11 and the other component comes out of a near-by hole 6a. Randall has the holes further apart. It is questionable as to how far apart the holes would have to be to avoid infringement on present claim 36. It is deem that the reactant feeding holes could be substantially any distance apart.

To summarize: the Office gives claims their broadest reasonable interpretation. Examiner is uncertain as to what the broadest reasonable interpretation of "nozzle" is. Examiner assumes that it is any structure (which could be a single unit or it could be a

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collection of unconnected elements). To Examiner this is interpretation is not absolutely “reasonable”, however it is relatively reasonable. To Examiner, all other interpretations are even less reasonable, because they would make the claims of such a narrow scope that it would be very easy for one to avoid literal infringement.

Examiner has no basis for interpreting the claim any more narrowly, and to do so would might unfairly limit the scope of any patent coverage. As indicated by the case law above, patent applicant has the opportunity and responsibility to amend the claims if Examiner’s interpretation is confusing or improper. Alternatively, applicant can indicate what the broadest reasonable interpretation would be.

If applicant argues the Office’s interpretation is not reasonable, Examiner will then look to see what reasonable interpretation applicant proffers. If none is found, Applicant’s argument will be view as mere agreement that the Offices “broadest reasonable interpretation” is not absolutely reasonable. And Examiner will likely maintain that it is relatively reasonable.

**THE SECOND of TWO DIFFERENT CLAIM INTERPRETTATIONS REGARDING the**  
**THIRD INTRODUCING STEP**

Using a more narrow interpretation of “nozzle”, for example “a planar burner face”. The Office is not attempting to suggest that the claims are so narrow – rather to show by way of example that even a narrow interpretation of the claim is not patentable.

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Randall does not teach the single burner face. However, Hawtof teaches at col. 8, lines 58-62 that having an atomizer as an integral part of the burner is preferred over a nebulizer separated from the burner. This is a suggestion that the combination into a single burner is better than the a two-piece apparatus. Hawtof's figures 2-3 are very similar to Randall's figure. It would have been obvious to use a burner (such as Hawtof's 40) rather than Randall's two-piece arrangement, because Hawtof suggests that it is better. And, as indicated above, it is generally not invention to combine two or more features.

Claims 22, 29 and 30 are deemed to be clearly met.

Claims 23-24: Ainslie provides the motivation to use erbium and aluminum. (col. 3, lines 19-25 and col. 2, lines 40-45.

### ***Response to Arguments***

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

It is argued that the present method has improved homogeneity relative to MCVD. This is largely irrelevant. A showing of unexpected results needs to be relative to the closest related art. The MCVD is completely different than claimed method. Any unexpected results would have to be relative to Hawtof or Randall.

Most importantly, the articles are equivalent to mere arguments.

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**37 CFR 1.132. Affidavits or declarations traversing rejections or objections.**

*When any claim of an application or a patent under reexamination is rejected or objected to, any evidence submitted to traverse the rejection or objection on a basis not otherwise provided for must be by way of an oath or declaration under this section.*

**Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ruppert, Blackwell, Couklias and Bocko are cited as being relevant to the disclosed invention.

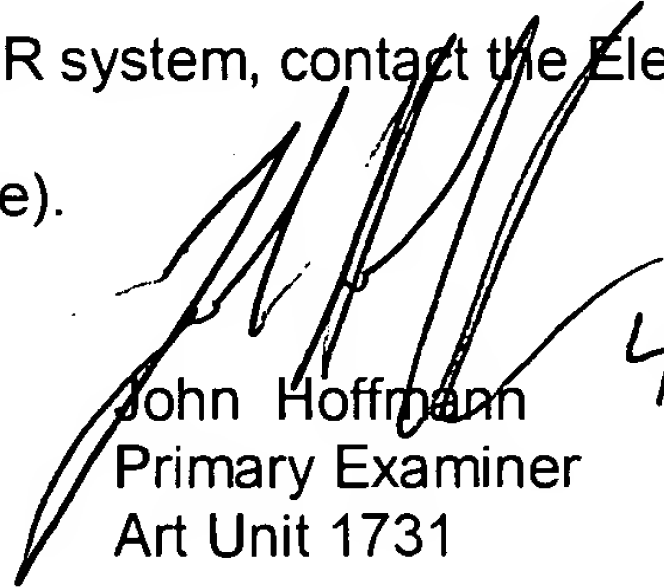
Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Hoffmann whose telephone number is (571) 272 1191. The examiner can normally be reached on Monday through Friday, 7:00- 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John Hoffmann  
Primary Examiner  
Art Unit 1731

4-24-05

jmh